

CLAIMS

1. A catalyst composition comprising a molecular sieve, hydrotalcite, and a rare earth metal component.
2. The catalyst composition of claim 1, wherein the molecular sieve is selected from silicoaluminophosphates, aluminophosphates, metal-containing forms thereof and mixtures, including intergrowths, thereof.
3. The catalyst composition of claim 1, wherein the molecular sieve is selected from SAPO-5, SAPO-8, SAPO-11, SAPO-16, SAPO-17, SAPO-18, SAPO-20, SAPO-31, SAPO-34, SAPO-35, SAPO-36, SAPO-37, SAPO-40, SAPO-41, SAPO-42, SAPO-44, SAPO-47, SAPO-56, AIPO-5, AIPO-11, AIPO-18, AIPO-31, AIPO-34, AIPO-36, AIPO-37, AIPO-46, MCM-2, metal-containing forms thereof, and mixtures, including intergrowths, thereof.
4. The catalyst composition of claim 1, wherein the molecular sieve is selected from SAPO-18, SAPO-34, SAPO-35, SAPO-44, SAPO-47, ALPO-34, metal-containing forms thereof, and mixtures, including intergrowths, thereof.
5. The catalyst composition of claim 1, wherein the molecular sieve is SAPO-34, SAPO-18, an intergrowth of SAPO-34 and SAPO-18, GeAPO-34, GeAPO-18 or an intergrowth of GeAPO-34 and GeAPO-18.
6. The catalyst composition of claim 1, wherein the rare earth metal is lanthanum.

7. The catalyst composition of claim 1, wherein the composition comprises from 10 to 90 wt % of the molecular sieve, from 10 to 90 wt % of the hydrotalcite, and from 0.1 to 5 wt % of the rare earth metal component, wherein the weight percents are based on the total weight of the molecular sieve, the hydrotalcite, and the rare earth metal component.
8. A catalyst composition comprising:
 - (a) an aluminophosphate or silicoaluminophosphate molecular sieve selected from SAPO-5, SAPO-8, SAPO-11, SAPO-16, SAPO-17, SAPO-18, SAPO-20, SAPO-31, SAPO-34, SAPO-35, SAPO-36, SAPO-37, SAPO-40, SAPO-41, SAPO-42, SAPO-44, SAPO-47, SAPO-56, AIPO-5, AIPO-11, AIPO-18, AIPO-31, AIPO-34, AIPO-36, AIPO-37, AIPO-46, MCM-2, metal-containing forms thereof, and mixtures, including intergrowths, thereof; and
 - (b) hydrotalcite.
9. The catalyst composition of claim 8, wherein the molecular sieve is selected from SAPO-18, SAPO-34, SAPO-35, SAPO-44, SAPO-47, ALPO-34, metal-containing forms thereof, and mixtures, including intergrowths, thereof.
10. The catalyst composition of claim 8, wherein the molecular sieve is SAPO-34, SAPO-18, an intergrowth of SAPO-34 and SAPO-18, GeAPO-34, GeAPO-18, or an intergrowth of GeAPO-34 and GeAPO-18.
11. The catalyst composition of claim 8, comprising the molecular sieve in an amount of from 10 to 90 wt %, and the hydrotalcite in an amount of from 10 to 90 wt %, wherein the weight percents are based on the total weight of the molecular sieve and the hydrotalcite.

12. The catalyst composition of claim 8, further comprising a rare earth metal component.
13. The catalyst composition of claim 12, comprising the molecular sieve in an amount of from 10 to 90 wt %, the hydrotalcite in an amount of from 10 to 90 wt %, and the rare earth metal component in an amount of from 0.1 to 5 wt %, wherein the weight percents are based on the total weight of the molecular sieve, the hydrotalcite and the rare earth metal component.
14. The catalyst composition of claim 12, wherein the rare earth metal component is lanthanum.
15. A process for producing a molecular sieve catalyst composition, the process comprising:
 - (a) providing a molecular sieve;
 - (b) providing a hydrotalcite composition comprising hydrotalcite and a rare earth metal component; and
 - (c) combining the molecular sieve and the hydrotalcite composition to produce a molecular sieve catalyst composition.
16. The process of claim 15, wherein the molecular sieve is selected from silicoaluminophosphates, aluminophosphates, metal-containing forms thereof and mixtures, including intergrowths, thereof.
17. The process of claim 15, wherein the molecular sieve is selected from SAPO-5, SAPO-8, SAPO-11, SAPO-16, SAPO-17, SAPO-18, SAPO-20, SAPO-31, SAPO-34, SAPO-35, SAPO-36, SAPO-37, SAPO-40, SAPO-41, SAPO-42, SAPO-44, SAPO-47, SAPO-56, AIPO-5, AIPO-11, AIPO-18, AIPO-31, AIPO-34, AIPO-36, AIPO-37, AIPO-46, MCM-2, metal-containing forms thereof, and mixtures, including intergrowths, thereof.

18. The process of claim 15, wherein the molecular sieve is selected from SAPO-18, SAPO-34, SAPO-35, SAPO-44, SAPO-47, ALPO-34, metal-containing forms thereof, and mixtures, including intergrowths, thereof.
19. The process of claim 15, wherein the molecular sieve is SAPO-34, an intergrowth of SAPO-34 and SAPO-18, or GeAPO-34.
20. The process of claim 15, wherein the rare earth metal component is lanthanum.
21. The process of claim 15, wherein the molecular sieve catalyst composition comprises from 10 to 90 wt % of the molecular sieve, from 10 to 90 wt % of the hydrotalcite, and from 0.1 to 5 wt % of the rare earth metal component, wherein the weight percents are based on the total weight of the molecular sieve, the hydrotalcite, and the rare earth metal component.
22. The process of claim 15, wherein the step of providing a hydrotalcite composition comprises:
 - (i) providing a solution of a rare earth metal compound;
 - (ii) treating hydrotalcite with said solution; and
 - (iii) drying the treated hydrotalcite to form a dried hydrotalcite composition.
23. The process of claim 22, wherein the rare earth metal compound is selected from halides, oxides, oxyhalides, hydroxides, sulfides, sulfonates, borides, borates, carbonates, nitrates, carboxylates and mixtures thereof.
24. The process of claim 22, wherein the solution is an aqueous solution.

25. The process of claim 22, further comprising (iv) calcining the dried hydrotalcite composition.
26. The process of claim 15, wherein the step of combining comprises:
 - (i) forming a slurry comprising the molecular sieve and the hydrotalcite composition; and
 - (ii) drying the slurry to form a dried, formulated molecular sieve catalyst composition.
27. The process of claim 26, wherein the slurry comprises a liquid, molecular sieve, hydrotalcite and a rare earth metal compound.
28. The process of claim 27, wherein the rare earth metal compound is selected from halides, oxides, oxyhalides, hydroxides, sulfides, sulfonates, borides, borates, carbonates, nitrates, carboxylates and mixtures thereof.
29. The process of claim 27, wherein the rare earth metal compound is soluble in the liquid.
30. The process of claim 27, wherein the rare earth compound and the hydrotalcite are pre-contacted to form the hydrotalcite composition.
31. The process of claim 30, wherein the step of pre-contacting comprises:
 - (i) providing a solution of a rare earth metal compound;
 - (ii) treating hydrotalcite with said solution; and
 - (iii) drying the treated hydrotalcite to form a dried hydrotalcite composition.
32. The process of claim 27, wherein the liquid comprises at least one of water, an alcohol, a ketone, an aldehyde, or an ester.

33. The process of claim 26, wherein the step of drying comprises spray drying.
34. A process for converting a hydrocarbon oxygenate feedstock to olefins, the process comprising contacting the feedstock with a catalyst composition comprising:
 - (a) a molecular sieve; and
 - (b) hydrotalcite;under catalytic conversion conditions, to form a product mixture comprising olefins.
35. The process of claim 34, wherein the molecular sieve is selected from silicoaluminophosphates, aluminophosphates, metal-containing forms thereof and mixtures, including intergrowths, thereof.
36. The process of claim 34, wherein the molecular sieve is selected from SAPO-5, SAPO-8, SAPO-11, SAPO-16, SAPO-17, SAPO-18, SAPO-20, SAPO-31, SAPO-34, SAPO-35, SAPO-36, SAPO-37, SAPO-40, SAPO-41, SAPO-42, SAPO-44, SAPO-47, SAPO-56, AIPO-5, AIPO-11, AIPO-18, AIPO-31, AIPO-34, AIPO-36, AIPO-37, AIPO-46, MCM-2, metal-containing forms thereof, and mixtures, including intergrowths, thereof.
37. The process of claim 34, wherein the molecular sieve is selected from SAPO-18, SAPO-34, SAPO-35, SAPO-44, SAPO-47, ALPO-34, metal-containing forms thereof, and mixtures, including intergrowths, thereof.
38. The process of claim 34, wherein the molecular sieve is SAPO-34, SAPO-18, an intergrowth of SAPO-34 and SAPO-18, GeAPO-34, GeAPO-18 or an intergrowth of GeAPO-34 and GeAPO-18

39. The process of claim 34, wherein the catalyst composition comprises the molecular sieve in an amount of from 10 to 90 wt %, and the hydrotalcite in an amount of from 10 to 90 wt %, wherein the weight percents are based on the total weight of the molecular sieve and the hydrotalcite.
40. The process of claim 34, wherein the catalyst composition further comprises a rare earth metal component.
41. The process of claim 40, wherein the catalyst composition comprises the molecular sieve in an amount of from 10 to 90 wt %, the hydrotalcite in an amount of from 10 to 90 wt %, and the rare earth metal component in an amount of from 0.1 to 5 wt %, wherein the weight percents are based on the total weight of the molecular sieve, the hydrotalcite and the rare earth metal component.
42. The process of claim 40, wherein the rare earth metal component is lanthanum.
43. The process of claim 34, wherein the feedstock comprises methanol and product mixture comprises ethylene and propylene.